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# Amateur Radio

JOURNAL OF  
THE WIRELESS  
INSTITUTE OF  
AUSTRALIA

For the Experimenter  
and Radio Enthusiast



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**WI BROADCASTS**

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

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**VK3WI:** Sundays, 1130 hours EST, simultaneous on 3932 and 7146 Kc. and re-broadcast on 50 and 144 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

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**EDITORIAL**

Members of the Wireless Institute of Australia living in country areas may be able to erect large and effective antennae to the discomfort and envy of their city brethren, but they suffer from the disadvantage of not being able to attend monthly meetings of their Division.

At these meetings, much information is given to members concerning the activities of their own Division and the activities of the Institute as a whole. Although much of this information is disseminated in weekly broadcasts and in this magazine, quite a lot of information never reaches the members who cannot attend meetings. Thus a position is created where members do not know what is going on and why.

It is of vital interest to all members to know what is going on because the growth of any organisation is dependent upon the amount of interest it creates amongst its members, and the recruiting of new members is difficult or well nigh impossible, in an organisation which is almost stagnant.

With a view to creating and stimulating interest in our organisation,

Federal Executive believes that, in addition to weekly broadcasts and the news distributed at meetings, members should have available to them some record of what is being done by Federal Executive on their behalf. Although this information is available at monthly meetings, the country member does not receive it and is, therefore, largely without information.

This and future issues of the magazine will contain a resume of the minutes of the proceedings of Federal Executive by which means it is hoped that members will be better informed than they have been in the past.

Furthermore, members will be able to judge whether or not and along what lines many matters, some of them contentious, are being handled.

Although only a resume can be given owing to the space factor, Federal Executive feels that the information provided will assist members to understand the machinery by which the Institute works and to have first hand information on what is afoot.

FEDERAL EXECUTIVE.

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# Effects of Electricity on the Human Body

By W. B. KOUWENHOVEN,\* Fellow A.I.E.E.

One of the causes of death on this planet that has existed since the time of creation is lightning. The true nature of this cause, however, was not recognised until the researches of Benjamin Franklin, 1749 to 1752, established the fact that a lightning stroke was an electric discharge on a grand scale and involved the flow of an electric current.

In 1753 one of the experimenters in this field, Richmann, of St. Petersburg, was killed by a discharge. The first man-made electric shock of which we have any record occurred in Holland in 1746, when two Dutch physicists unintentionally discharged a Leyden jar through their bodies. The first reported death due to man-made electricity occurred in France in 1879, and the second in Scotland a year later. Today in the United States and Canada the number of fatalities annually ascribed to electricity is seven per million of population, and approximately half of the accidents reported are fatal. In the electricity field the number of deaths of employees ranges from 70 to 80 per year.

## FACTORS

In determining the effects of the passage of an electric current through the body there are certain factors that should be taken into consideration. They are:

1. Type of circuit with which contact is made.
2. The voltage of the circuit.
3. The resistance offered by the human body.
4. The value of the current that flows through the tissues.
5. The pathway of the current through the body.
6. The duration of the contact.

These six factors are related to each other and no attempt has been made to arrange them in the order of their importance. In some instances it is impossible to discuss a single factor separately.

**The Circuit.** The type of circuit and its voltage, with which contact is made, have a profound effect upon the resulting injury. D.C. circuits do not produce the strong contraction of the muscles that is found with alternating current, and in general the sensation produced by direct current is greatest when the circuit either is made or broken. Low voltage d.c. circuits are not as dangerous as the corresponding a.c. circuits. In fact, there is only one case on record that the author has knowledge of where a man was killed on a 120 volt d.c. circuit in which there was no possibility of a high induced voltage due to the opening of a field circuit or similar cause. On the other hand, contact with high-voltage d.c. circuits is more apt to be fatal than contact with alternating circuits of the same voltage. In cases of lightning shock the musculature contraction is usually absent.

Amateurs generally take far greater risks than they should when handling high voltages in their transmitters, and in reading this article, for which we are indebted to the State Electricity Commission, take particular note of the section on ventricular fibrillation, which is in effect, an oscillation of the heart caused by **LOW VOLTAGES**, and if that happens, unless medical assistance is at your side, means **CERTAIN DEATH**.

**Read, take precautions, and finally think before you plunge your hand into the transmitter.**

With alternating current there is little if any significant difference in the reactions of the body to shocks from 25 and 60 cycle circuits. Daiziel has found that the response of the human body is practically uniform for frequencies ranging from 10 to 300 cycles per second. At 1,000 cycles, a somewhat greater value current is required to produce a given reaction, while very high frequencies, such as are used in diathermy, have only a heating effect.

The effects produced by interrupted direct currents vary not only with the period of the interruption, but also with the cycle followed. An exponentially rising unidirectional current is the most efficient for the stimulation of nerves. As such wave forms are difficult to generate, square or rectangular waves usually are employed. Square waves are almost as effective as the exponential type, and they are generated and controlled more easily.

**Voltage.** People recognise that high voltages are dangerous. However, they should be equally careful of low voltages. There are a number of cases on record where contact with 60 and 65 volt circuits of commercial frequencies have resulted in fatal accidents. The lowest voltage fatality of which the author has any record occurred at 46 volts, 60 cycles. It is probable that circuits of 24 volts or less may be considered as safe under practically all conditions.

**Resistance of the Body.** The resistance of the body consists of two parts, that offered by the skin at the points of contact, and the internal resistance. The skin consists of two principal layers. The outer skin or epidermis is from 0.05 to 0.2 millimeter thick. It is non-vascular and on the palms and bottoms of the feet horny and calloused. The inner skin, or derma, is from 0.5 to 1.7 millimeters thick and contains blood vessels and nerves. Dry epidermis has a high resistance which may reach 100,000 ohms per square centimeter. The resistance offered by the inner skin is low, as body fluids and blood are good conductors because of their salinity. In fact, the only poor conductors inside the

body are the bones. The internal resistance of the body is therefore relatively small.

The equivalent electric circuit of the body consists of three parts. Where the current enters, the epidermis acts as capacitor with a poor dielectric. The tissues of the body act as pure resistances and provide a homogenous path for the passage of an electric current. At the point where the current leaves, we again have a capacitor with a poor dielectric. This may be demonstrated by taking an oscillogram of the current when a continuous potential of 50 volts is applied to electrodes held in the hands. At five microseconds after closure of the circuit a current of 19 microamperes was recorded. At 500 microseconds the current had fallen to three microamperes. At 10,000 cycles the power factor of the body of a normal healthy person is about 0.1.

The resistance of the skin is not constant. It varies with the amount of moisture that it contains, the temperature, and the applied voltage. Under thoroughly wet conditions, the resistance of the epidermis may fall to as low as 1/100 of its dry value. If contact with a circuit continues for any length of time, the skin loses its protection because of the formation of blisters. At 50 volts blisters form in six or seven seconds. The relationship between a 60-cycle voltage and the resistance offered to the flow of current is illustrated in the following table.

Alternating Voltage	Average Resistance (Ohms)	Range Resistance (Ohms)
50	10,000	5,000-18,000
500	1,200	800-1,800
1,000	1,100	800-1,800

These readings were taken three seconds after the circuit was closed, and were made on cadavers. The circuit through the body was from hand to hand. When the epidermis was removed, the resistance was found to be practically independent of the voltage. In general, the skin of the female is of lower resistance than that of the male. This is true for skin taken from such areas as the abdomen and back where callousness is not present. An individual's skin resistance also increases considerably (about double) when asleep.

**Current.** The value of the alternating current that flows through the body when contact is made with an electric circuit is of extreme importance as it determines the resulting injury. Current values that are of interest are—

1. Threshold of feeling.
2. Let-go current.
3. The freezing current.
4. The current which an individual can withstand without being rendered unconscious.
5. The current that will produce ventricular fibrillation.
6. The current which will produce a block in the nervous system.
7. The counter shock current.

The current that will just produce a tingling sensation which can be detected at the point of contact, is of the order

\* Dean of Engineering and Professor of Electrical Engineering, The Johns Hopkins University, Baltimore, Md.

of one or two milliamperes. Some individuals, particularly women, are extremely sensitive to small currents. Other individuals are not so sensitive. The sensitivity of an individual to detect a small current also varies with his physical state.

It is well known that contact with an electric circuit produces a contraction of the muscles. This contraction may be so severe as to prevent the victim from freeing himself from the circuit. The let-go current is that value of current which an individual can withstand without harmful effects for at least the time required for him to release his hold on the circuit. Professor Dalziel has made an exhaustive study on a representative group of men and women and reports that for men the standard frequency let-go current is nine milliamperes and for women, six. This is the current value that 99.5 per cent. of the individuals tested could release voluntarily. The value of the let-go current varies with the individual and Dalziel found that for men it ranged from 8 to 22 milliamperes.

The current that will hold an individual frozen to a circuit is naturally in excess of his let-go value. Because of the heating produced by the current where it passes through the epidermis and the short time required for the skin to blister and lose its protective resistance, this freezing current should be avoided at all costs. Unless there is someone present to break the circuit, the result may be fatal.

There is no information available as to the current that an individual can tolerate without losing consciousness. The lowest value of current that will produce unconsciousness is somewhere between the let-go current and that required to produce fibrillation.

A current of 100 milliamperes flowing from the hands to the feet is sufficient to throw the ventricles of the heart into fibrillation. This value of current is not large enough to hold the heart in diastole; instead it disturbs the rhythm and co-ordination of that organ. Each individual heart muscle functions without regard to the others, and the action of a heart in fibrillation looks like the ripples that flow across a puddle when a pebble is dropped into it. In this condition the circulation of the blood ceases, because the heart no longer acts as an effective pump.

The current that will produce a block or partial paralysis in the nervous system is of the order of several amperes. The nerve block prevents the signal from the brain reaching the lungs and natural breathing ceases. Artificial respiration should be applied promptly in such cases.

The counter shock current is that current which will bring the ventricles of a fibrillating heart to rest. A 60-cycle counter shock current of between one and two amperes applied directly to the heart will arrest fibrillation. When this current is broken sharply, the heart usually will resume its normal co-ordinated beating. There is no information available as to the most advantageous location of the electrodes nor as to the current value required when the electrodes are applied externally to the body.

**Pathway Through the Body.** The pathway that the current traverses in

its passage through the body is of extreme importance. In general, if there are no vital organs, such as the brain, the heart, or the lungs, in the current path, the resulting injury is a minimum one (burns excepted). For example, in some experiments on rats in which the animals were given a two-second shock at 220 volts, 60 cycles, all those where the current path was from foreleg to foreleg died; while those where the path was from hindleg to hindleg survived.

In most industrial accidents the current path is from the hands to the feet. This path involves the heart and the lungs and is, therefore, particularly dangerous. When contact is made at two points on the same arm or leg, no current passes through the trunk. In fact, when current enters the body via one leg and passes out through the other, no vital organs lie in its circuit.

Once the current enters the body trunk, it follows a more or less fusiform pattern. When through-type current transformers were inserted in the body, it was found that approximately ten per cent. of the total current passed through the heart when the current pathway was from one hand to the feet.

**Duration of the Contact.** The duration of the contact should be as short as possible, and the higher the voltage, the shorter should be the time of contact, if there is to be any hope of recovery. In fact, duration of the contact should be as brief as the janitor's Christmas.

#### EFFECTS

The passage of an electric current through the body produces numerous effects that differ not only in intensity, but also in kind. They range all the way from a slight tingling sensation to death. The consequences depend upon the value, frequency, and pathway of the current and on the duration of the shock. The aftermath may be good or evil. An electric shock may produce healing in certain mental diseases or it may produce a state of depression of the vital processes of the body characterised by rapid but weak pulse, rapid but shallow breathing, pallor, restlessness, and a depressed mental state similar to surgical shock or a highly excited, almost maniacal state. Some of the effects produced by an electric current are discussed in the following.

**Conscious Phenomena.** If the victim of an electric shock retains consciousness during and following the contact, there is often a whistling or ringing in the ears and partial deafness for a time. In addition, there may be visual disorders such as flashes and brilliant luminous spots. Pain and soreness of the muscles are a common reaction. If the shock is a severe one, the victim usually will be restless and irritable. These disorders generally disappear in a few hours.

**Muscular contractions** are produced when contact is made with an electric circuit. These contractions are particularly marked when the circuit is an alternating one of commercial frequencies. At high voltage the tetanus of the muscles is very sudden and severe. It may throw the victim clear of the circuit. In some instances bones have been broken. The severity of the contraction probably accounts for the soreness that is felt in the muscles. Clonic contrac-

tions of the extremities often are observed following a shock and tremors may continue for some minutes.

**Convulsions** may occur in cases of electric shock. They usually are characterised by irregular muscular spasms and tremors.

**Loss of consciousness** occurs in many electrical accidents. Sometimes the victim recovers spontaneously; in other cases, either after the application of artificial respiration, or never. Cases also have been reported where the victim lost consciousness when contact with the circuit was made at two points on the same leg or hand, and in which there was no burning of the tissues. Such cases are believed to be due to a severe shock to the system.

**Electric burns** are of two types, those produced by the heat of the arc, as may result when contact is made with a high-voltage circuit, and those that are caused by the passage of the electric current through the skin and the tissues. Burns resulting from an electric arc are, in general, similar to those produced by high-intensity heat sources. The true electric burn often is characterised by a pinkish mark on the surface of the skin. The burns, however, may penetrate deeply and require considerable time to heal. Jellinck reports a case where the current value was large enough actually to char the flesh at the elbow where there exists only a relatively small amount of body tissue. Burns, blisters, and markings are not necessarily present on the skin after an electric accident. When the skin is saturated thoroughly with water and the contact area is not restricted, a fatal shock may not leave the slightest detectable blemish. Burns produced by electricity usually heal without infection. They, however, heal slowly. In severe cases, fingers or limbs may be lost and death may follow as a secondary effect.

**The Nervous System** may be so profoundly shocked or fatigued by a contact with an electric circuit that it can not function normally again for a period of minutes or hours. The nerve cells are injured, especially in areas that have been traversed by the current. Injured cells are characterised by a dark shrunken nucleus, which is often eccentric in position, and the loss of granules. The damage, however, is patchy in distribution so that injured and normal healthy cells lie in close proximity. Autopsy of shock victims also has revealed cavities in the nervous system of 25 to 200 microns in diameter. These may be caused either by heat or electrolysis.

One of the most common effects on the nervous system is the production of a temporary paralysis or block. The location of this block will depend upon the path taken by the current. The lungs or other portions of the body may be paralysed following the shock. There is a case on record where a woman stood with her back resting against the edge of an electric range when the power line was struck by lightning. She received a severe shock which was followed by a temporary paralysis and loss of sensation in both limbs that lasted for about four hours. The many successful resuscitations resulting from

(Continued on Page 5)







operating the relay and the rubber motor that is associated with the escapement. The escapement is of the simple sequence type and operates neutral left, neutral right, neutral. There is no need to describe this as anyone interested will have the necessary knowledge or can obtain same from certain publications dealing with them.

#### TRANSMITTER

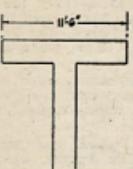
Of the two frequencies allotted for radio control of Models in Australia, namely, 26.957 to 27.282 Mc. and 40.66 to 40.7 Mc., the higher frequency was chosen as there it was more practical to use a half-wave antenna on the transmitter and also the wing span of the aircraft would allow a quarter-wave aerial to be used.

The failure of some types of gear seen, seemed to be in the stability of the transmitters and so from the first, crystal controlled was aimed at and overcome in one tube by the use of the harmonic oscillator circuit. The crystal frequency is 6780 Kc. and the output frequency 40.68 Mc. A lot of the success of control is attributed to having stability in the transmitter.

#### ANTENNA

Used in all tests is a simple folded dipole made of 300 ohm ribbon, the flat top being 11 ft. 6 in. long.

#### ANTENNA

  
**Conclusion.** — Although this article is not explicit in all minor details and does not include construction of the actual aircraft, it is hoped that it will give those interested in this very fascinating hobby, that combines radio, enough knowledge to help overcome some of the very obstacles that may be marring their attempts to achieve successful control of their particular Model, it aircraft or ship.

All enquiries will be answered by the author and help given where possible.

## MORSE CODE

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## RADIOTRON 6BV7

#### Double Diode Power Output Pentode

The new Radiotron novel 6BV7 miniature valve has been designed by the engineers of Amalgamated Wireless Valve Company especially to meet the needs of manufacturers of compact, low-cost receivers with high performance. This new valve is mounted on the standard nine-pin miniature base and contains in one envelope, two diodes and a high-slope power output pentode with a common cathode.

With a seated height of 2 $\frac{1}{2}$  inches and a maximum diameter of  $\frac{1}{4}$  inch, the 6BV7 makes possible the design of ultra-small superheterodyne receivers using only three valves: 6AE8 (or the 6BE6), 6BV7, 6X4.

The pentode section mutual conductance of 10,000 micromhos and a power output of 4 watts for 10% total harmonic distortion under 100 volt a.c. operating conditions. The valve was designed for use in low cost four valve receivers in which good performance is required with reduced plate and screen voltages and low cathode currents. The application will be seen in control grid bias of 100, 150 and -4 volts respectively. Radiotron 6BV7 will deliver 2 watts output for 10% distortion with a plate current of only 20 Ma.

**APPLICATION**

The Radiotron type 6BV7 is a nine-pin miniature duo-diode output pentode with a transconductance of 10,000 micromhos and a power output of 4 watts for 10% total harmonic distortion under 100 volt a.c. operating conditions. The valve was designed for use in low cost four valve receivers in which good performance is required with reduced plate and screen voltages and low cathode currents. The application will be seen in control grid bias of 100, 150 and -4 volts respectively. Radiotron 6BV7 will deliver 2 watts output for 10% distortion with a plate current of only 20 Ma.

**Diode Considerations:**

The two diode units are placed on opposite sides of, and parallel to the cathode, the sleeve of which is common also to the pentode unit. The minimum diode current per plate with an applied d.c. voltage of 10 volts is 0.8 Ma.

#### APPLICATION

The Radiotron type 6BV7 is a nine-pin miniature duo-diode output pentode with a transconductance of 10,000 micromhos and a power output of 4 watts for 10% total harmonic distortion under 100 volt a.c. operating conditions. The valve was designed for use in low cost four valve receivers in which good performance is required with reduced plate and screen voltages and low cathode currents. The application will be seen in control grid bias of 100, 150 and -4 volts respectively. Radiotron 6BV7 will deliver 2 watts output for 10% distortion with a plate current of only 20 Ma.

#### Diodes

The location of the diodes in the output valve allows a very convenient layout of the conventional 4 valve straight or reflexed receiver and enables higher i.f. gain to be obtained without excessive regeneration, or without neutralising, that is, when the diodes are located in the r.f. amplifier valve.

In receivers with an a.f. amplifier between the detector diode and the grid of the pentode section, it is recommended that the diode connected to pin 6 be used for detection as this diode has the lower capacitance to pentode plate. In other types of receivers either diode may be used for detection.

#### Pentode

**Grid Resistor.** The maximum permissible value of grid resistor for Radiotron 6BV7 under maximum conditions of 100, 0.5 megohms for cathode bias operation and 0.1 megohm for fixed bias operation. In conventional back-biased receivers in which the pentode is operated at maximum ratings, the grid resistor should be reduced to a megohm or less, the ratio that the cathode current of the 6BV7 bears to the total current drawn by the receiver.

Larger values of grid leak may be used when the dissipation of the valve is reduced. For example, under the 100 volt conditions quoted above in a back-biased receiver in which at least half of the total B supply current is drawn by the output valve, the maximum permissible value of grid resistor is 1 megohm.

**Grid Stopper.** The high transconductance of Radiotron 6BV7 makes possible power output and under 250 volt operating conditions an input of 0.25 volt r.m.s. gives 50 m.w. output. Under 100 volt conditions an input of only 2.6 volts r.m.s. gives full rated output. In addition to its usefulness in the power output of the valve, the high transconductance of Radiotron 6BV7 makes possible the use of a larger degree of negative feedback than would otherwise be possible. Even in the case of a four valve straight receiver, worthwhile degrees of negative feedback can be applied to the output stage while still maintaining good overall sensitivity.

Because of the high transconductance of Radiotron 6BV7 a grid stopper should always be used and a value of 50,000 ohms is recommended.

In four-valve straight receivers a large audio voltage appears on the diode and with the volume control turned to minimum the amount of playthrough is proportional to the impedance between cathode and grid stopper. For this reason a grid stopper should not be too large — 5,000 ohms is as effective as 50,000 ohms in suppressing the grid-coupling capacitor—or should the grid coupling capacitor be too small. Under these conditions playthrough will be very low.

**Use with Low-Level Pick-Ups.** When Radiotron 6BV7 is used as part of a high-gain pick-up amplifier, such as is required with some low-level pick-ups, it is desirable to arrange a radio-diode-ground switching to remove the detection diode from the circuit in the high-gain pick-up position in order to remove the possibility of feedback through the diode circuit. As such switching is not practicable in receiver to prevent interference with recorded items from radio programmes, this arrangement does not normally involve additional cost.

**Ventilation.** The envelope of Radiotron 6BV7 becomes very hot in operation, and free circulation of air around the valve is necessary.

## FEDERAL EXECUTIVE PROCEEDINGS

This is a new column to be featured monthly bringing to the country members and metropolitan members, who are unable to attend the regular monthly meeting of the Division, a brief summary of resolutions arising from meetings of the Federal Executive. By this means the more isolated members of the Institute will be kept in touch with what is going on.

The Federal Executive meets twice in each month—sometimes three times—to discuss and resolve the directives and problems of each Federal Council.

A copy of the minutes of all meetings is forwarded to each Division through the Federal Councillor, who is the liaison officer between his Divisional Council and the Federal Executive. Any member in a Division who desires more detailed information on any matter appearing in this column is at liberty to address the Council of his Division.

A member may desire to have a matter of a Federal nature discussed and resolved by Federal Executive. He does not write direct to the Executive! He writes to his Divisional Council first; the Council then decides if the matter is Federal, or whether it is domestic. If the matter is considered a domestic one action is taken by the Council. If the matter is on a Federal level it is forwarded by the Federal Councillor to the Federal Executive. The resolution of the matter by the Federal Council is detailed back to the Divisional Council who in turn advises the member. The machinery of the Federal organisation works smoothly. The members should use it to achieve their requirements.

### Resume of Minutes of Meetings of the Federal Executive held during July, 1952

**Ratification of Convention Minutes.**—The Secretary reported that all Divisions had ratified the minutes of the 1952 Annual Federal Convention.

After discussion, it was agreed that the Secretary would implement action on all items as soon as possible.

**Visit of President Elpidio Quirino, President of the Philippines.**—It was

agreed that it would be an appropriate time to ask President Elpidio Quirino why the DU Amateurs had been forbidden to contact other than Amateurs of the U.S.A. since the Philippines gained its independence after World War II.

**Office of Assistant Federal Secretary.**—It was agreed to offer the position to John Rice-Oxley, VK3AKO, who had signified his willingness to undertake the duties involved.

**Knowledge of Federal Affairs.**—Discussion took place on the lack of knowledge of what was happening in Institute affairs at a Federal level—particularly on the part of country members who were unable to attend monthly meetings of the Division.

It was resolved that a resume of Federal Executive meetings should be included in the magazine under the heading, "Federal Executive Proceed-

ings," similar to the method adopted by contemporary overseas magazines.

**144 Mc. Transmissions from VKA.**—The Secretary submitted correspondence from the Queensland Division reference 144 Mc. transmission on the air between 7 p.m. and 7.30 p.m. every Sunday night. It was agreed to ask all Divisions to ask their v.h.f. members to listen out and, if heard, report direct to VK4.

**Discussion with the Postmaster-General's Department.**—After consideration of a report of discussions between members of the Federal Executive and Officers of the Wireless Branch of the P.M.G.'s. Department pursuant with directives from Federal Council arising from discussions on appropriate agenda items at the 1952 Convention, it was agreed that the Federal Executive should press for finality of the appropriate matters without delay.

## AMATEUR COMMUNICATIONS THROUGHOUT JUNE-AUGUST N.S.W. FLOODS

During June many N.S.W. inland towns experienced their worst floods in history. Although Amateur Radio Stations during the emergency were not called upon to handle any great amount of traffic, stations were always available when called upon. They spent many hundreds of hours listening and operating and reflected upon the potential value of the service in emergency.

Many Amateurs in various areas assisted in the operation, 2WH, 2AMV, 2WT, 2ANF, 2ADT, 2AWY, 2SN, 2ALX, 2TC, 2JV, 2ACT, 2II and 2BQ all rendered assistance.

It was another credit mark recorded for Amateur Radio and all stations participating.

The authorities—Army and P.M.G.—gave Amateur Stations full support and prompt co-operation.

Late in July and early in August, N.S.W. Amateurs were again engaged in emergency working. At the end of July when the Macquarie River floods reached serious proportions at Bathurst, the 144 Mc. band was used for an emergency call to Sydney. At the time, the telephone link to Sydney was out and the Bathurst Police requested Trevor 2NS to contact Sydney. They required

an urgent message to be relayed calling for the immediate dispatch of Army "Ducks" to the area for rescue work. A number of people were isolated and lives were threatened.

A CQ Sydney Emergency, on 144 Mc. at 10 p.m., resulted in a reply from Charlie 2NP answering, who passed the message to the Sydney Police. The link was kept open until 1 a.m., when all traffic was cleared.

It was the first important work on the v.h.f.s. in emergency and the distance covered—100 miles—makes it even more interesting.

Further emergency work was performed on 6th and 7th August, when the Hunter Branch Net swung quickly into operation, after a cyclonic disturbance caused river levels on the Hunter and its tributaries to rise swiftly.

Stations active in the Net were: 2ANU, 2VU, 2JZ, 2DG, 2XQ, 2TY, 2AKP, 2ADT, and 2AHA.

During the last three years, the Hunter Branch Emergency Net has been active on many occasions during flooding of the Hunter. The Net, by their work, have clearly shown the value of Amateur Radio in such emergencies.

Valves, new, boxed, R.C.A. 834s, £1/8/- each.

6C4s, 12/- each.

Limited number of the following Taylor Tubes: TZ20s, £2/10/- each; TB35s, £6/10/- each.

### TRANSMITTERS ALTERED FOR BUSH FIRE AND FISHING BOAT WORK.

CRYSTALS, as illustrated, 40 or 80 metres, AT or BT cut. Accuracy 0.02% of your specified frequency, £2/12/6 each.

20 metre Zero Drift, £5 each.

Large, unmounted, 40 or 80 metre, £2 each.

Special and Commercial Crystals—Prices on application.

Crystals re-ground, £1 each.

**BRIGHT STAR CRYSTALS** may be obtained from the following Interstate firms: Messrs. A. E. Harrold, 122 Charlotte St., Brisbane; A. G. Heeling Ltd., 151 Pirie St., Adelaide; Atkins (W.A.) Ltd., 884 Hay St., Perth; Lawrence & Hanson Electrical Pty. Ltd., 120 Collins St., Hobart; Collins Radio, 409 Lonsdale St., Melbourne; Prices Radio, 5-6 Angel Place, Sydney.

### DC11 TYPE CRYSTAL HOLDERS WANTED. ANY QUANTITY.

Screw-type Neutralising Condensers (National type), suits all triode tubes, Polystyrene insulation, 19/6 ea.

**BRIGHT STAR RADIO**

1839 LOWER MALVERN ROAD, GLEN IRIS, VIC. Phone: BL 3510  
Prompt delivery on all Country and Interstate Orders. Satisfaction Guaranteed.

# AMATEUR CALL SIGNS FOR MONTH OF MAY, 1952

## ADDITIONS

**NEW SOUTH WALES**  
2EG—W. J. Sherriff, 17 Brook St., Muswellbrook.  
2AKC—K. J. G. Conroy, 120 St., Balgownie.  
2APZ—Rev. R. L. Kerdell St., Peter's Rectory, 10 Church St., Leeton.  
2AQK—D. Hodgins, Mobile aboard S.S. "Belgrave," Post: "Selroydon," Ross St., Glenbrook.  
2ART—D. Hodgins, "Selroydon," Ross St., Glenbrook.  
2ATE—P. F. Christie, 1 Marcell St., Kingsgrove.

## Victoria

3AM—A. M. Forecast, Mountain Highway, The Basin.  
3KO—M. A. O'Keefe, 46 O'Keefe St., Preston.

## QUEENSLAND

4MU—G. J. Matheson, Knight St., Red Hill, Kingaroy.

## SOUTH AUSTRALIA

5AV—A. E. V. Molineux, 39 Coorara Ave., Sth. Pt. Frenchman.

5OG—L. E. Lawton, 31 Fortsgreen Ave., Pennington.

5SU—F. M. Gray, 52 Ormond Gr., Adelaide.  
5WT—W. Trevor, Portable in Central and Southern Districts of S.A.; Post: Myal Aye, Murray Bridge.

## TAJAM

7DZ—D. H. Watkins, 27 Hope St., Newtown, Hobart.

## ALTERATIONS

**NEW SOUTH WALES**  
2NP—50 Harris Street, Sans Souci.  
2NB—206 "Cheverells," 2 Elizabeth Bay Road, Darlinghurst.

2RY—Lot 26, Charles Street, Herne Bay.  
2WP—55 Lambton Road, Charlestown.

2XK—288 President Avenue, Miranda.

2ANR—Flat 1, Howe Cres., Almire, Canberra.  
2ATR—18 Harper Street, Merrylands.

## VICTORIA

3HI—C/O P. O. Learmonth.  
3FQ—28 Foster Street, Dandenong.

3JU—1040 Sydney Road, Merlinton.  
3PC—16 Cushing Avenue, Bentleigh.

3QA—Fitzroy Parade, Glen Waverley.  
3JU—115 St. Kilda Street, Elwood.

3QL—Morgan Street, Elwood.  
3TY—9 Raglan Street, Sale.

3VH—448 Glenburn Road, South Caulfield.  
3VJ—225 Malabar Rd., Blackwattle.

3ZZ—Ormond Crescent, Box Hill North.  
1AAP—14 Carlyle Street, Maldstone.

3ABO—Lot 7, Taylor Street, Clayton.  
3AFH—9 Fawcett Street, North Balwyn.

3DZ—122a Grosvenor, Coburg, E.S.  
3AJL—22 Royal Crescent, Coburg, E.S.

3AKC—6 Grant Street, Colac.  
3AMG—52 Ormond Road, Armadale.

3AMZ—52 Hoddle Street, Elsternwick.  
3ATN—Campbell Street, Birchip.

## QUEENSLAND

4CK—44 Hendersons, Bulimba, Brisbane.  
4SG—74 Steens Road, Toowoomba.

4WH—23 Mindham St., Mysterion Estate, Townsville.

## SOUTH AUSTRALIA

5GW—29 Grassmere Road, Prospect.  
5HE—National Bank, John Street, Salisbury.

5LM—114 Anzac Highway, Hindmarsh.

5MS—Acacia Street, Mount Gambier.

5ST—34 Albert Street, Semaphore.

5TL—Rial Road, Renmark.

5BR—1 Mark Street, Geraldton.

## TAJAM

1GR—7 Nelson Road, Sandy Bay, Hobart.

1MG—Opposite Bay, Prospect Street, Launceston.

## DELETIONS

N.S.W.: VKs 2FA, 2AO, 2AO.

Vic.: VKs 3AC, 3UE.

Qld.: VKs 3AO, 3MO.

V.A.: VKs 5KV, 5KZ.

Tas.: VKTOK (now operating under VK3KO).

Tas.: VKs 1BS (now operating under VK3EG).

## FOR MONTH OF JUNE, 1952

### ADDITIONS

**NEW SOUTH WALES**  
2SZ—P. T. Filmer, 84 Cabramatta Rd., Mosman.

2ACW—L. R. Hawkins, 624 Olive St., Albion.  
2TR—T. Ralph, 85 Kurra Rd., Neutral Bay.

2AKH—G. F. E. Knox (L.L.Cmdr.), 18 Brentwood Ave., Turramurra.

2APN—D. G. Littlejohn, 14 Chamberlain Ave., 10462, Croydon.

2AVK—S. F. Williams, "Esinore," Edwin Ave., North Katoomba.

## Victoria

3HQ—Mrs. M. L. Williamson, 17 McLean Ave., Bentleigh.

3KD—R. S. Chambers, 328 Pascoe Vale Rd., North Essendon.

3OR—R. W. Dwyer, Point Avenue, Beaumaris.

3PO—D. Miller, 21 Sweeney St., Ballarat.

3AAS—Army Apprentices' School, Amateur Radio Club, Army Apprentices' School, Balcombe.

3AHP—H. L. Fogg, C/o. Australia and New Zealand Bank Ltd., Benalla.

3AJE—S. J. G. Glynn, 5 Glynn Ave., Brighton.

3AKO—J. R. Oxley, 33 Victoria Ave., Canterbury, E.7.

3ANO—R. A. Jones, 9 Norge St., Sunshine.

3ANS—R. N. Shunbeck, 185 Buckley St., Footscray.

3APL—J. W. London, 89 High St., Glen Iris.

3AVB—V. B. Aldrich, 22 Somerville Rd., Yarraville.

## QUEENSLAND

4HJ—J. H. Chesterfield, Russell St., Cleveland 40X—H. Cox, Flat 1, 11 King St., Nth. Mackay.

## SOUTH AUSTRALIA

5TA—R. W. Tate, 21 Berl St., W. Hindmarsh.

5VK—W. P. Kempster, Smithfield Hostel, Smithfield.

5WF—F. G. Anear, C/o. R.A.A.F. Station, Mallala.

## WESTERN AUSTRALIA

6AU—L. A. E. G. Norman, 16 Agelt Rd., Claremont; Post: Box N1068, G.P.O., Perth.

6FE—F. M. Eddy, C/o. Radio 6AM, Northam.

## TAJAM

7DR—D. J. Robinson, 1000 Rd., Ulverstone.

7TR—R. T. Calvert, 310 Park St., Hobart.

7SF—S. F. Medford, 4 Cooper St., South Burnie.

## TERRITORIES

9DT—D. G. Taylor, Samarai, T.N.G.

## ALTERATIONS

### NEW SOUTH WALES

2BG—343 Kissing Point Road, Dundas, Sydney 2ED—262 Lander Avenue, Punchbowl.

2JZ—222 Blaxland Rd., Roselands.

2JB—Reid Street, Roselands.

2LU—111 Hood Street, Yagoona.

2VM—35 Weroona Avenue, Narrabeen North.

2WZ—74 Landsdown Parade, Oatley.

2YB—1 Avenue, Crows Nest.

2ABM—126 Northgate Road, Northcote.

2ADQ—93 Campbell Parade, Manly Vale.

2AGS—Fishbourne Road, North Manly.

2AH—Albert Street, Casino.

## Victoria

3JT—Eldorado Hotel, Leveson St., North Melbourne.

3JZ—7 Foam Street, Parkdale, S.11.

3OY—85 Wagstaff Rd., Oakleigh, S.E.12 (VK3OY) recently changed from VK3HQJ.

3RX—38 Mercer Road, Armadale.

3US—182 St. Kilda Road, Melbourne.

3VJ—15 Hassett Street, Leederville.

3ZJ—265 Queen's Ave., Caulfield, S.E.9 (VK3ZJ) recently changed from VK3AZJ.

3ZM—126 Bellary Street, Kensington, W.1.

3ABX—3 Fairway Avenue, Mount Beauty.

3AGH—Nolan Street, Kilmore East.

## QUEENSLAND

### SOUTH AUSTRALIA

5AT—40 Broadway, Bassendean.

6BF—93 Toorak Road, Rivervale.

## TERRITORIES

9BI—Lae, T.N.G.

## DELETIONS

N.S.W.: VKs 2T, 2AD (now operating under VK3ADA), 2AH, 2AO (now operating under VK3AO), 2AP (now operating under VK3AOX), 2AZ (now operating under VK3ADX).

Vic.: VKs 3NH, 3OH, 3RG, 3JJ, 3AAC, 3AJZ (now operating under 3ZJ).

Qld.: VKs 4HP, 4NF.

S.A.: VKs 5HF (now operating under VK3AHP), 5GD (now operating under VK3OR), 5LO (now operating under VK3PO), 5MB.

Tas.: VKs 5PF (now operating under VK3ZS).

W.L.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

## Television Questions and Answers

Questions on television, submitted to VK3ADA, after being answered by post, will be anonymously published and again answered here, as space permits, to benefit other readers.

Q.—What is meant by "Spot-Wobble?"

A.—This is a system incorporated in some British 405-line receivers, to "make the scanning lines invisible." As the spot of light traces out each line on the screen, it is made to rapidly oscillate vertically, thereby broadening each line just sufficiently to fill the spaces between them so that the latter are no longer visible.

Although this system does not improve the definition, it has the psychological effect of making the picture appear clearer, through the absence of the familiar "pencil lines" across it.

Q.—I've read that if Australia copied the American system of 60 fields per second, instead of 50, we could have a brighter picture. Why so?

A.—Actually, by adjusting the brilliance and contrast controls, you can make the picture as bright as you please, Old Man—so long as you don't mind flicker! You see, it's been proved that the brighter the picture, the more noticeable becomes the flicker. For in-

stance, in a modern cinema, the projector's shutter frequency (corresponding to our field frequency) is only 48 exposures per second, yet no flicker is apparent, simply because the picture on the screen is so dim, that it can only be seen in a dark theatre.

If the picture were made brilliant enough to be viewed in a brightly-lit living room, however, the flicker would become very noticeable and could be eliminated only by increasing the repetition, or "field" frequency to around the 60 mark, so your quotation would be quite correct, if the words "without flicker" were suffixed.

In television, however, if the field rate was increased from 50 to 60, the number of lines per picture would have to be reduced to keep the signal's bandwidth within its limits and the consequent sacrifice in picture detail is hardly justified.

A 50 field/sec. picture can be sufficiently reduced in brilliance to eliminate flicker, and still remain quite bright enough to be viewed under average domestic lighting conditions; screen phosphors have also been developed with sufficient persistence to eliminate flicker in an even brighter picture, without adversely affecting the latter.

In any case, the darker the viewing room, the better will be the picture, even with a 60 field/sec. system, because of the improved light/shade contrast. The reduced brilliance is probably better for the eyesight, too.

# FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

## NEW SOUTH WALES

The August meeting of the V.h.f. Section was held at Science House and took the form of a "gear" night. An excellent display of gear was shown with many excellently built crystal controlled converters, crystal control Tx's, and grid dip oscillators. It says much for the progressive attitude of those interested in v.h.f.

A Scramble was held on Sunday, 3rd August, on 6 metres which was a huge success with the boys in the North showing up to increase the total. The event was won jointly by 2ANF and 2VVW with a total of 17 contacts out of a possible 22.

Main interest at the moment is the forthcoming 144 Mc. Field Day (weekend) during October when the Gladesville Radio Club and the W.I.A. are combining to make the event one of spectacular interest. It is proposed that camping groups will go out and man the major mountain tops some distance from Sydney and others will man the closed mountain tops within one day's travel to and from Sydney. It is hoped by this means to really establish some long distance contacts and also, if the VK3 Division co-operates, to work through to Victoria.

## VICTORIA

The next V.h.f. Group meeting is on the 17th September, 8 p.m., at the

Rooms, 191 Queen Street. Visitors are welcome. Listen to 3WI for further announcements regarding meetings.

At the July meeting of the Victorian Division V.h.f. Group, Fred 3YS described his portable 6 and 2 mx Tx. This is xtal controlled with an 832 in the final, running 3 watts input and series modulated. The Tx was on view together with motor generator and three element beam.

Victorian v.h.f. enthusiasts have been preparing gear for their section of the W.I.A. stand at the forthcoming All Models Exhibition. A 50 and 144 Mc. station will be in operation to contact fixed and mobile stations, so if you hear them calling for contacts, please give them a call. Various other units of v.h.f. gear will be on display.

At the N.E. Zone Convention, held at Tatura on the 20th July, some neatly constructed v.h.f. gear was displayed by 3UI and 3APF. Of special interest were the xtal controlled converters which have been used so successfully. The N.E. Zone is to be congratulated on their early and consistent effort on v.h.f.

## SOUTH AUSTRALIA

All bands still remain quiet although some have a little activity. 5ME has returned from a few weeks' duty at Renmark with SBC and reports being able to hear Nulli Aeradio on 122 Mc. almost every day, a distance of approx. 160 miles. This even in winter, so

how about a little more activity chaps? It can be done if the will is there.

A recent "QST" gave a mention of the good work done by 5GL, 6BO, 5QR, on their 144 Mc. QSOs. 5AX's efforts have been rewarded and now has a very good signal in the city on 144 Mc. 5GY, in town recently, was given an eye opener of v.h.f. activity. Would be a sitter from his QTH. 5MK hopes to shift into his new home shortly and will be back on the v.h.f. bands soon after. How about the gardening Ron.

## WESTERN AUSTRALIA

50 Mc.—6LW has appeared with both Rx and Tx. 6JW with a vertical dipole puts out a strong sig from a QQE06/40. John is making up a 6J6 pre-amp. on this band. 6IG on phone again—nice signal. 6DW and 6FE on this band also. 6HK has dropped his 834s until a new modulator is built. 6RK is back in his old shack and on the air again. 6GB not heard for some time. 6BO has nil to report except a new mast being built for the 7 Mc. antenna.

144 Mc.—Last month 6AG went portable and put out a marvellous signal from Greenmount. There have been quite a few in the QSOs of a Sunday evening, up to seven or eight—6JS, 6AG, 6OR, 6GM, 6RU, 6KW, 6WT, 6RK and 6BO (6GB also). Roy 6RK has made his appearance with an 829B—fine sig too. 6HK using a QQE06/40 and a folded dipole, awaiting the new modulator. Don 6HK also puts out a nice sig from his pair 6M5 triplers. 6FC has now worked first QSO on 144 over 100 miles with self. Frank puts a very good sig into Perth.

# TRIMAX

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For many years  
Trimax have been  
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# Transformers

N.S.W.: Radio Equipment Pty. Ltd.  
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These types  
are recom-  
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Write for our latest leaf-  
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# DX NOTES BY VK4QL\*

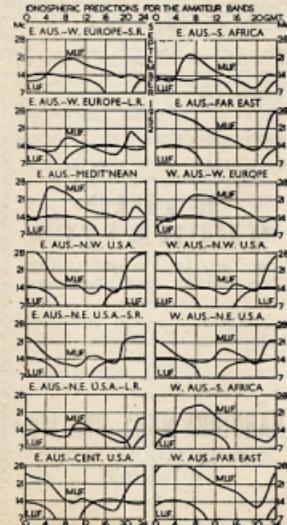
It's still a matter of being around at the right time, if you want to work anything decent in the way of DX. The old attitude of "Think I'll go on and work some DX," is not fulfilled in a great percentage of those visits. No warning is given when the opening will be, and a few hours of one particular day is preceded and followed by days of quiet. I myself was a little luckier this month to hear some, but not necessarily work the good ones that appeared.

On the 10th, for example, at 2145z, the 7 Mc. band produced four continents, the prefixes being ZS, OK, W and VK, and on the 13th at 2200z, ZD4, W1, W2 and W3. On the 13th, 21 Mc. was the best I have ever heard it as far as strong DX sigs were concerned, but only W, KH6, ZL were heard. In the evenings of the 16th, practically no Ws were coming through on 7 Mc., but KE, KZ5, J, CO and YV were there instead.

On the 20th, 14 Mc. opened to Africa for a brief period in the afternoon, ZS1, ZS3 and CR6 being worked, while VK3 worked ZD4. I did the wrong thing then, as I went to 7 Mc. to see what it was producing, whereas 2AWU watched 21 Mc., and was rewarded by a break through to Europe. 4EL found one afternoon, 0500z, he was able to work Europe on 7 Mc., and they were gone by 0600z. 3CP also got through to Europe on this band at 0645z. 4EL and others have worked Europe on 14 Mc. up to 2359z. So you see from that

\* Fit. Lt. F. T. Hine, No. 10 (G.R.) Squadron, R.A.A.F., Townsville, Queensland.

## PREDICTION CHART FOR SEPT., 1952



that things are abnormal on all bands, no set pattern being followed. The band survey shows:—

**3.5 Mc.:** 4QL found little in the way of DX, but towards the end of the month, ZL sigs were exceptionally strong, and VR2CO was worked. 5FL, who when I worked him, was portable at Pine Creek, and using 10 watts, said he had worked W, VE and KG6, at dusk on this band. Nice going Ross. 7RK heard a few Ws underneath the noise.

**7 Mc.:** 3CP has not found the band to his liking, and reports very little of note, other than his one break through to G on the 20th at 0645z, and one morning at the end of the month. Athol also heard HK5CR\*, CO2EBM\*, 4X4BX\* (2000z), LU4ZL, SM7AAZ\*. 4XJ can hear the Ws OK of an evening, and also landed a good one on phone in FU8AC at 2100z. 4QL found a few interesting calls, and added a new one to bring his 7 Mc. score to 73 worked. Lists VP7IND, ZS5NN\*, ZS5DE, ZS5LN\*, W3PDW at 2200z, ZD4AB 2200z, WIARE and W2WWP 2200z, W3TBP 2245z, XE2OK, KZ5CZ, J2GO\*, CO2EBM\*, YV5DE\*, 4X4DH, K4USA 2230z. With the exception of the Central Americans, most were heard as late as 2200z, which makes 7 Mc. a daylight band. 7RK not doing so well, Ray only hearing the usual run of N. Americans.

**14 Mc.:** 3CX said that LB2XD, ZS7D, VR7AB, FB8BE, ZA3KAA, LZ1KAB, ZS2M1, ZD4AB, FL8MY have been heard or worked by the VK3 boys. Some of these in the evenings, which is in contrast to this QTH where nights are useless. 4XJ, not so active, lists J\*, K6BAX\*, YV5AZ, KR6IN\*: Less findings. Ws OK most afternoons. 4QL lists 4W1WY, HP1ILA\*, HPIBR, EA8BF 2245z, ZB21\*, ZS3K\*, ZS1H\*, CR6BZ\*, FL8MY, TA3AA. The jackpot was hit, by my giving VS5EL his No. 1 QSO on setting up in Brunei, and bringing the total worked to 179. Incidentally, after about the third QSO, the gang were calling him on his own freq., but not getting anywhere. 7RK remarks that most of his listing, in normal times, he would not mention. You're not on your own in that Ray. He shows 4X4BN, 4X4RE, 4X4DK, K6BAX, KM6AX, ZC4XP, CN8ET, CN8MI, HZ1MY, ON4RM\*, OZ8F, E4SCY, F1AB8, CR9AF, VR3C, FB8ZZ\* 0020 and 0115z, FB8BB, ZS2M1. Ray wore his fingers down after the last two, and said the VK5 gang fastened on to ZS2M1 on 19th. TA3AA, YS10, and KV4BB complete the list. Also says LZ1MY, LX1DC, ZA3KAA are known to be active.

**21 Mc.:** As well as 2AWU getting through to the Europeans, think there were others who made it, but calls are unknown. 2AWU lists YU1AD\*, G6GN\*, G6HL. Walter is interested if his QSO is the first legit QSO VK/Europe. 4XJ found KH6 only. 4QL KH6\*, W0\*, W2, W4 and W6. 7RK nothing further than ZL. At the present time, this band is good up here for VK2 and VK3.

**28 Mc.:** This band seems to be at the all time low and most hear nothing to work.

The QSL situation is like the bands, not much doing. 3CX received GD2FRV,

VQ1RF, FQ8AC, TF5TP, YI3EFE, VQ8AF, ST2GL, 4XJ: YU1BK, VP6SD, KC6DX, KH6QY/KC6, KV4AA. 4QL: W1AC, KV4AA 3.5 Mc., VR1A, YU1AD, CT3AN.

The "gen" section this month has very little of interest. VS6CG was unable to make the projected trip to VS5 with WOELA. ZC2MAC is reported to be now QRT. On 1st August there was quite a big reorganisation of frequencies amongst the Commercial stations, in VK at least, and it will be interesting to see how our bands fare if International changes are taking place round the same time. 7RK offers a suggestion to those seeking Morse training. Listen to ZKF, of the R.N.Z.A.F., on 3320 Kc., Saturday and Sunday from 0700-0800z. Speed starts at 10 w.p.m. and finishes at 30 w.p.m. As from 26th July, the KA prefix supersedes that used by JA stations.

Finally it is getting more difficult each month to "make ends meet" for this page, and if the DX gang can't find time to let me have the necessary to "make ends meet," I will have to consider cessation of compilation of this page. So do you help, or do we close down? It's up to you.

## DX C.C. LISTING

### PHONE

Call	No. Ctr.	Call	No. Ctr.
VK3BZ	3 163	VK4JP	8 114
VK3EJ	10 163	VK4LWW	14 112
VK3HR	10 163	VK4LWD	14 103
VK3JD	1 155	VK5SMS	24 108
VK3RU	2 152	VK4RW	23 104
VK4KS	9 152	VK2ADT	13 102
VK4LWW	1 152	VK4LWD	13 102
VK5LW	1 141	VK5HJO	25 102
VK4PJ	21 135	VK5PJP	19 101
VK4JE	7 133	VK4RT	22 101
VK4WF	1 130	VK3MG	5 100
VK5DD	6 129	VK3GG	18 100
VK4WJ	17 122		

### G.W.

Call	No. Ctr.	Call	No. Ctr.
VK3BZ	6 162	VK4RF	11 128
VK4HR	8 162	VK4LWW	27 123
VK3FJ	15 177	VK3YD	27 123
VK3EO	2 152	VK5SJI	25 118
VK3CH	1 151	VK3PZL	38 117
VK3GW	16 151	VK3HT	37 117
VK3KX	20 150	VK3EM	12 116
VK3SA	25 150	VK3LW	12 116
VK4FJ	29 150	VK4DA	7 113
VK3JV	4 143	VK7LZ	17 112
VK3KL	5 143	VK4RC	13 107
VK3V	11 141	VK3VQ	10 107
VK3RK	23 140	VK5KWW	40 104
VK3KB	10 138	VK2YC	34 103
VK3FH	31 134	VK3APA	14 101
VK3BS	33 133	VK3NC	19 101
VK3V	20 130	VK3P	22 100
VK3JE	21 129	VK7TR	22 100
VK3XK	30 128	VK2AEZ	35 100

### OPEN

Call	No. Ctr.	Call	No. Ctr.
VK3BZ	4 220	VK3VQ	46 116
VK3HR	1 219	VK3W	11 116
VK3JE	12 190	VK3JA	43 114
VK3RU	8 186	VK2ADT	14 113
VK4FJ	32 173	VK4RW	52 113
VK3HG	3 171	VK3VQ	47 111
VK3KX	11 170	VK3PSM	21 110
VK3DI	2 170	VK4RC	21 110
VK3JK	1 167	VK3ZB	34 110
VK4EL	10 167	VK5HJO	38 110
VK4KL	24 167	VK3VYL	10 108
VK3GO	29 167	VK3QAWN	36 108
VK3LN	29 144	VK2ZVN	18 104
VK3FL	23 143	VK3MC	27 104
VK3MC	5 139	VK4UL	27 104
VK3V	11 137	VK3V	50 104
VK4WF	40 137	VK3GPW	50 104
VK3KD	22 136	VK2H2Z	17 103
VK3HT	41 135	VK7KBB	30 103
VK3AD	21 133	VK3ETL	37 103
VK3V	19 132	VK3VX	31 102
VK3AH	9 128	VK7TR	31 102
VK3KA	20 125	VK4TY	35 102
VK3NS	16 123	VK5SHI	51 101
VK3JJ	33 119	VK3ACK	6 100
VK3LZ	23 116	VK3TG	39 100

# FEDERAL, QSL, and



# DIVISIONAL NOTES

Federal President: G. GLOVER (VK3AG); Federal Secretary: G. M. HULL (VK3ZB); Box 2611W, G.P.O., Melbourne.

## NEW SOUTH WALES

President: John Moyle, VK2JU.  
Secretary: David H. Duff (VK2EO), Box 1734 G.P.O., Sydney.  
Meeting Night: Fourth Friday of each month at Stevens Hotel, corner Gloucester and Essex St, Sydney.  
Divisional Sub-Editor: Harry Powell, VK3AYP, 9 Russell Avenue, Wahroonga.

Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK3HAH, Ryans Ave, West Kempsey; Newcastle: Ron McD. Stuart, VK3RS, 125 Pitt St, St. Leonards; Coalfields and Lakes: Harry Hawkins, VK3YV, 122 Comfort Ave, Cessnock; Western: W. H. Stitt, VK3WH, Cambrijohna Forbes; South Coast and Southern: Roy Raynor VK1DO, 42 Pitti St, Yarraville; Central: Don Stock, VK3DS, 48 Yankee Ave, Waverley; Northern Suburbs: Harry Powell, VK3AYP, Russell Ave, Wahroonga; St. George: Chas. Coyle, VK3YK, 84 Carlton Cres, Kogarah Bay.

## VICTORIA

President: G. Dennis, VK3TF.  
Secretary: L. R. Bradshaw, VK3XK.

## FEDERAL

### PAO ON 21 Mc.

The V.E.R.O.N.—Netherlands Section of the L.A.R.U.—have advised that the PAOs are now intended to operate in the new 21 Mc. band. The official list of frequencies for the use of licenced amateurs in the Netherlands is as follows:—

3300	3800	Kc.	144	145	Mc.
7000	7150	Kc.	144	145	Mc.
14000	14500	Kc.	1215	1390	Mc.
21000	21450	Kc.	2300	2450	Mc.
28000	29700	Kc.	5650	5850	Mc.
			10000	10500	Mc.

### 1952 REMEMBRANCE DAY CONTEST

Judging by the "Solid Walls of QRM" evident on the bands—particularly the 7 Mc. band—during the Remembrance Day Contest last month, it seems a certainty that the participants reached an all time high, indicating an unusually interesting and competitive Contest.

Particularly noticeable was the gentlemanly operating technique employed by most operators in waiting as long as practicable before "coming in" on top of another station in other words, the "Federate" spirit has been most faithfully exchanged. This consideration of the other man was exemplar of good "Hamming," and will no doubt show up in the final results by the actual contacts made by all participants.

The members of the N.S.W. Divisional Contest Committee have again been co-opted by F.E. to judge the results of the Federal Contest, and all participants are urgently requested to forward their Logs through their respective Division without undue delay so that the arduous task of checking the Logs will not be unnecessarily delayed.

The sooner the Logs reach the Committee, the sooner the results will be known.

September 12 is the last day the Logs can be received by the Committee—See Rule 16, Article "A".

Incidentally, the Contest again proved that the 7 Mc. band—in particular—is not as "useless" at night as most Amateurs think. So what about using it more!

## FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Cards from HZ1HZ state, "This city, Mecca, has no other religion but Islam, and no other forefathers but Muslem."

A card from ABC relating to a phone QSO on April 19, 1952, is addressed to VK3P—and states, "Thanks Rudge." The card from HZ1TA confirming phone QSO on 16th January, 1952, and addressed VK3P, was still unclaimed. Owners please apply this Bureau.

Stan Mayne, VR2AS, writing under date of May, 1952, states, "Hurricane hit me hard, smashed up the business, but my home safe. The said got into the trade and their business up by 100%." The business lost the top storey and of course the frail ceiling couldn't keep out the rain, so for a month or so it poured in and we had to wade through water. May get on again with a boom."

Ferdinand FK3AC, on furlough in France, has been issued with the call sign

Administrative Secretary: Mrs. J. Hurley, Law Courts Chambers, Queen St, Melbourne.  
Meeting Night: First Wednesday of each month at the Radio School, Melb. Technical College, Zone Correspondents: Western: C. C. Waring, VK3YW, 12 Skene St, Stawell; South Western: P. Perkins, VK3APK, 182 McIlroy St, Geelong; East: F. A. D. Buchanan, VK3FD, "Boroondara," Wattle Park, Far North: M. Folie, VK3GZ, 161 Lemon Ave, Mildura; Eastern: H. O. Kellas, VK3AHK, Timbarra; North Western: C. Case, VK3JACE, Cumming Ave, Birchip.

## QUEENSLAND

President: V. Jeff, VK4VJ.  
Secretary: J. F. Pickles, VK4FP, Box 638J, G.P.O., Brisbane.  
Meeting Night: Third Friday in each month at the L.R.C., Wickham St, Valley.  
Divisional Sub-Editor: Guidford, VK4AP, 36 Bramston Tce, Herston, Brisbane.

## SOUTH AUSTRALIA

President: W. W. Parsons, VK3PS.  
Secretary: R. G. Harris, VK3R, Box 1234K, G.P.O., Adelaide. Telephone: 1151.

F3GQ, and expects to come on the air for three months commencing middle September. During this period he will be located at Tamaris.

Interesting details of the life and conditions on Macquarie Island are given by Eric Macklin, VK3EM. Winds of 100 m.p.h. are common and constitute the worst enemy of radio by bringing down the antennae. A new 100 watt Tx to replace the 50 watt job now in use, has been constructed and will take the ales shortly.

During the visit of J. T. WOELA was located at Brunel signing V3B3ELA. The itinerary provided for a visit to Sarawak but radio conditions were so poor that he abandoned the projected visit and returned Stateside.

It is stated that it is now permissible for D.U. stations to contact all other Nations. While confirmation of this statement has not been sighted, observations on the air support the rumour.

## NEW SOUTH WALES

The July meeting of the N.S.W. Division was held at Science House on Friday, 25th, with the President, Mr. John Moyle, in the chair. John looked a bit battered with a piece of shrapnel still embedded in his forehead and it necessary to forestall facetious remarks by explaining at the outset that he had been in bed with two carbuncles. It was announced that the Annual Field Day would be held at Warragul on 21st September, 1952, and that it will be an even bigger success than last year's effort. Put the date down in your appointment book now so that you will be the day clear of other engagements.

Bob Black, VR2QZ, VK2QZ/9/P, VR4AF was then called upon to talk on his experiences in the Transom Islands and the Solomons with a Type A Mk. III. rig. The talk was well illustrated with lantern slides and the rather sparse attendance, which braved the very inclement elements, learnt quite a lot about geography and ethnology, as well as valuable operation in the tropics. Bob exhibited a wealth of dry humour which one had hardly realised was there, and gave us all a very satisfying experience.

After the lecture, Bob answered a barrage of questions on all sorts of subjects and finally persuaded Dr. Holt, of Honara, Guadalcanal, to go to the platform to assist him. The discussion became very medically technical at times but none the less interesting. Dr. Holt has a

## W.I.A. ACTIVITIES CALENDAR

- October 4-5: VK-ZL DX Contest (all bands), C.W. Section.
- October 11-12: VK-ZL DX Contest (all bands), Phone Section.
- December 6-7: European DX Contest (all bands), C.W. Section.
- December 13-14: European DX Contest (all bands), Phone Section.

Meeting Night: Second Tuesday of each month at 17 Wyndham St, Adel.

Divisional Sub-Editor: W. W. Parsons, VK3PS, 10 Victoria Avenue, Rose Park.

## WESTERN AUSTRALIA

President: W. E. Coxon, VK3AG.  
Secretary: J. Mead, Box N102, G.P.O., Perth.  
Meeting Place: Perth Technical College Annex.

Meeting Night: Second Monday of each month.

Divisional Sub-Editor: R. H. Atkinson, VK3WZ, Box 127, Geraldton, W.A.

## TASMANIA

President: R. O' May, VK7OM.  
Secretary: F. J. Evans, VK7FJ, Box 271B, G.P.O., Hobart.  
Meeting Night: First Thursday of each month at the Photographic Society's Rooms, 133 Liverpool St, Hobart.  
Divisional Sub-Editor: V. Dore, VK1JD.  
Zone Correspondents: Northerns: C. A. Cullinan, VK1XW, 12 Montrose Place, Launceston; North Western: R. K. Wilson, 4 Menal St, Burnie, Tasmania.

VR call sign but has not been very active lately mainly on account of receiver trouble.

General business followed and suggestions for suitable lecture subjects were called for. A few good suggestions were received but if anybody has any ideas, please trot them along to the Hon. Secretary. It may be some time before a suitable lecturer is tee'd up but finding out what would interest the members is the predominant part of the committee and if you want to know about some particular subject there are probably plenty of others who do so too, so let us hear from you. The meeting concluded with a short report from the Federal Councillor.

## WESTERN SUBURBS

2AXZ, not heard of much of late, busy with his new project and other photographic gear. 2AAB has better modulation since he cleaned things up, nice signal now. Barry, what about some DX? 2ARW on the bands with nicely modulated signal, pleased to hear you again. 2AZT is back on the air again, now of course horizontally polarised; but the signal on the vertical was very fine indeed. 2XJ's beam will soon be rotating. 2XB will test gear 2XJ works out wonders with signal of late, modulation must be improved, also 2AWU working the DX on 21 Mc. 2OQ back on again recently. 2HX logged the other night on c.w.

The Burwood Radio Club is meeting each Tuesday night at Greenwood Hall, Liverpool Road, Enfield. The 144 Mc. Rx is being built by degree and will be on the air in no time. Visitors always welcomed and assured of a good night.

2XU heard on 7 Mc. recently, getting a little practice for the R.D. Contest. 2AEI still bashes

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had holiday in Melbourne. Max 3GZ on at week-ends only, busy with house renovations and no time for Ham Radio. Frank 3FC heard on c.w. occasionally, puts a solid 59 signal into Mildura. Geoff 3AHM working a bit of DX on c.w. during afternoons, has improved his modulation by modulating both screen and control grids.

#### NORTH EASTERN ZONE

The North Eastern Zone's Annual Convention has come and gone after being held in the Mechanical Hall in Tatura on 20th July and 21st. President was Mr. Eric S. French, 3JC, zone correspondent 3FD, and Communications Officers, that is someone to report on the VK3WI Sunday morning broadcasts, etc. etc. 3KAW, 3VW, 3WQ, 3VY, ploughed large numbers of forty men and visitors attending, including some of the senior officers of the State and Federal Executive. It was decided, amongst other things, to hold the zone hook-up on 80 m instead of 40 m if the conditions on the band are not suitable for intra-state working.

Heard at the Convention. Howard 3VY in good form again. That 3JL is going to do a D.C.A. technician standardisation course in Melbourne, leaving Chas 3ACW to hold the Institute for the Ararat, Rock 3PF will buy up an ex-service mobile gear box houses he won't have to use. Later heard that Associate Rex Anderson had passed his A.C.C.P.; congrats OM. Must keep some news on ice men, so more next month. Editor and the weather permitting.

#### CENTRAL WESTERN ZONE

29th and 31st September—days to remember and keep free—re the days of the Central Western Zone Annual Convention to be held this year at Horsham. You remember the Ararat Convention last year? It was a good one, Horsham will be better. There will be a hidden Tx hunt on 3.5 Mc. with a new giant, free for the duration, and with the possibility of riding under tough conditions, and things to see for those not out hunting or scrambling. A contest will be held for the best piece of home-built gear on exhibition, with a worthwhile prize.

We aim this year to plan for the XYLs and husbands, too (so that the OM will not be having all the fun); so chaps bring along the wife and family. We have a good park avail-

## TECHNICAL ARTICLES

The Technical Editor reports that the technical articles' bag is very nearly empty, so how about it chaps?

Don't forget the beginners have to be catered for, so articles on beginners' equipment are also welcome.

able with plenty of playing facilities for the children and a real get-together for everybody. Those of you who come for the two days and extra accommodation contact Byron Hardinge, 3TA, 32 Natimuk Road, Horsham (Phone 379 or 542), by phone, letter or telegram, but don't leave it late or you may sleep in the park.

Further details will be put over VK3WI, as they come to hand. Make a date to be in Horsham on Saturday and Sunday, 20th and 21st September. Will we be seeing you?

#### EASTERN ZONE

3AHK has blown up another power transformer on his modulator, that's the third isn't it Ossie? Anyhow that's one less earbasher on the air. 3SS and 3SG using new Rx's. 3SS working on a 100w. rig using an 813 in the final. David, the junior op., a 3SS, sat for his ticket and was soon looking like another call sign for the zone. Alas, passed everything except the morse receiving. Jack 3FK expects to be putting out a signal from Bairnsdale shortly. 3ADH continues to put out a signal from Sale, although the rest of the boys from over that way are silent. It is rumoured that Howard 3VY may be heard again soon. 3AGF expects to be forsaking us for the charms of VFL shortly, best of luck to you, Howard. Geoff 3TQ. There are two new Hams in the zone, they are 3AQD and 3VN, both are located in the Latrobe Valley.

The Hams that took part in the emergency operation during the floods, received personal

letters of thanks from the Chief Commissioner of Police.

The last meeting of the Sale sub-branch was held at the home of Graham 3GO. It was decided to have a hamfest and field day in the Orbost district late in September or early in October. This is with a view to future emergency operation in that district, so blow the cobwebs out of the rigs chaps and let us have a good roll-up.

Whatever you do don't forget the Eastern Zone Convention to be held at Bairnsdale on the 1st and 2nd of November.

#### SOUTH WESTERN ZONE

3JA and 3AKR are building new rigs, Jack hopes to be on the air soon, and Kevin is just putting the final touches to his 3GK. He's on 80 m. using 2 watt, doing well on small rig. 3HG has nearly got all his problems regarding remote control for his diesel generator ironed out and soon hopes to operate his rig using all the comforts of home. Pat 3ADN needs a new rig, help him out.

Jack 3ALP bought a wind generator at Werribee, almost ready for transportation back to Geelong. 3II having had luck with his power transformers, is using 3AGD's rig while John holidaying up in the snow at Mt. Bulla complete with Type 1 and 2 antenna. The first rig of the gang goes to Bill 3BI who has been presented with a new junior operator in the way of a son. 3NU has not been heard of for quite a while so any news re his whereabouts would be greatly appreciated. John 3ASV is still mad on car racing and, like quite a few other members of the zone, is building up a real super duper rig.

#### GEELONG AMATEUR RADIO CLUB

At the beginning of the month the new President, Mr. Bob Wooley, 3JC, occupied the chair. After the business had been attended to, a letter was read to members which had been sent by Bill 3BN, thanking the members for their kind words and sympathies expressed in his recent loss of his father. The late Mr. Brownbill, although not a member of the club, took a keen interest in it, taking part in many field days.

At the following meeting, a large number of members were present. The syllabus for the evening was a lecture by Alf 3AJF on Taxi Radio and had a complete set-up on display. Later he conducted a tour of inspec-

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not usually "snooty" person that I would like to point out to this Harry person that to the best of my knowledge we have never been introduced, and therefore, I cannot descend to the level of Christian names with a rising boy-boy, no matter how good his rates may be. I might be in a few years time when he is pulling down the salary that "A.R." now pays me, I might call him Atkinson, or even SWB, but Harry, never, it is just not done in literary circles. I am sorry Harry but I just could not do it.

## WESTERN AUSTRALIA

By the time this is in print the 1932 R.D. Contests will be come and gone and where will stand VK6? At the head of the list, I hope! But if it doesn't you know who is to blame, don't you? There may be those who can understand and excuse the fellow who can't "Q.C." contests. I don't mind it myself, it only means helping VK6 to win more honour and glory for himself! You may understand that selfish attitude; I don't. But that's for ordinary contests; I don't care about that. R.D. Contests, it—it's a joint effort by a State team, with the much maligned "limelight-seeker" of normal contests doing all the bullocking for you while you pick the time to submit your work in normal contests and then retire. So I hope every one of you who now read this can say, with an easy conscience—Well, I didn't let the State down; my log was sent in and it conformed to requirements."

On 13th July, VK6WV will complete research and that previously-mentioned "cylinders" or "roughs" that move about. George also touched on Villard's "Q Multiplier" which sounds to me like an application of the same principle as "rectifiers" in which some of us have tried. George said it was hoped practical tests would be made with the "Q Multiplier" in VK6 if suitable components could be obtained and if so, further work would appear in the VK6WV monthly circulars. Incidentally, it sounded that morning as though Dr. Munro's "cylinder" resonant being talked about for the 7 Mc. band was certainly screwy. It was the same day that the band (and called) PY2HB on 7 Mc. beat the queue of Yanks wouldn't yield an inch to a mere VK6! During July, however, there was usually plenty of c.w. to be worked on the band, even though the cylinder of that procedure—VK, ZL and WZ. One early morning session (0630 local time) yielded nothing. However, towards the end of the month a QSO was managed at 0630 with VSTNG—it would be hard to imagine who was the more surprised.

Now, **Third Dates**, Mater 5th September—Combined Dinner of the W.A. and Radio Society of W.A. Tickets available from Council and committee members respectively. 14th September—7 Mc. Scramble. Blow the dust off the rig, fire up the 'vivo' and get in touch. It's bedlam, but it's fun. There is a lot of fun. September—Monthly General Meeting. Remember, meetings are now held on the third Tuesday of each month.

**Swingin' Ham**—6XG writes to say activity at Katanning is at a low ebb. Says 6XF is at the stage where he'd gladly trade an 607 for a re-enameled golf ball. 6XG's main interest seems to be a re-build 'vivo'. Old one, writes George, has no much of it. It sounds like the Luton Girls' Choir. Another Ham who has joined the "swing club" is 6RT. XYL, Emd, also enjoys chasing the little white pill.

No signals from Kellerberrin at date of writing. Hurrah up, Cyrus! We're looking for you. Looks as though the Ham in that town may be the signal for the encouragement of one or two local chaps to study for the ticket. VK6 prefers c.w. but comes on occasionally with a nice phone signal. The result is not so good with the final with a G150. Vic is getting to know a lot of the boys through 7 Mc. contacts. Just as well, G150 seems an increasingly sort of block, the comment those untrained people. SL and SWZ talk about phone quality would cause severe foaming at the mouth in any touchy individual. Never mind, Allan, you can always pass it off as "restricted range" or "over-clipping".

Frank, my old spy asks me the pertinent question: "Who was the VK6 who got a b.c.l. complaint from 300 miles away?" Well, it would have worked only my XYL (who is well trained in these matters) answered the phone and when a voice came from the other end, the caller named her usual brisk and business-like manner. The voice, without hesitation, replied "Frank Beadle." That ripped it! Too bad, chaps, it could have been a good leg-pull. Thanks for the dope on metal rectifiers, Frank. A nice gesture.

Rojo came to light again this month with some notes and these should appear in the '30 Mc. and Above' department. His comments on the lower bands are: "21 Mc. the only VK6s I know have been on are 7WZ and 7TRB. 7TRB has been using his 26 Mc. beam and now has up a two-element which could be for 21—although I haven't heard him" 28 Mc. "Nothing heard."

Last month, due no doubt to my long-windedness, parts of the notes were deleted by ye Hon. Ed., including a reference to a certain State electing, or all people, its scribe as President. No matter—we can be as rude to each other as we like from now on, we're pen-palsey-walsey, aren't we, Warwick?

## TASMANIA

Unfortunately, this month, time does not permit covering the monthly general meeting, which is to be held after the deadline for getting the notes away. However, I feel quite certain that TAJ's lecture on "16 mm. Sound on Film" will prove highly interesting, and will attract a good attendance.

Else this month in print, another R.D. Contest will have retreated into the past—and in the quiet, which follows such intense activity, I feel, may be fitting to just cast our minds back to the Hamfest, where some memorabilia of the Contest was held. Fate decreed that they should not be with us, but let us hope their memory will be perpetuated by many more Remembrance Day Contests to come.

Latest news to hand at present is that he hoped to leave Tasmania on August 15th in order to do a course in Melbourne—and who knows?—Melbourne is not so far from Hobart these days. Once again, congratulations are the order of the day, and we wish to Brian EB1, our opponent as Radio Inspector. We feel sure that things will continue to run smoothly for Brian, and with a minimum of trouble. Ted YK6 has now shaken the Southern dust from his feet, and is now resident in Devonport. Guy, you will be showing up soon on some of the bands, so grab a bit of time off from that new love and let us hear from you.

Also some news to hand on 7M/Y who recently changed over to n.c.m. (no carrier suppressed modulation to you). Alan should be appearing again soon, with the accent on v.h.f., and at the present time is very QSL. We look forward to re-joining the crew, Alan, and now, in passing, we have an un-paid advertisement. An unhappy member, with non-working QXer is most anxious to meet up with another member who possesses one that will work. For further particulars, please contact the Secretary—Oh, Mavis!

TDA has now moved to a brand new home out Glenorchy way, and is finding plenty to do as a temporary radio station. In a certain number rooms will be taken over for the Ham gear, and I am not alone in the suggestion that you should incorporate additional filters in all power supplies.

Two more has been rather tranquil, but there have been one or two violent spasms which prove that though it may be down, it's far from dead. Bert 7BC is still coming up the straight on 144 Mc. so, a little more haste than usual will be taken in getting the gear, and that's only the hold up now. 7LE and 7DH are endeavouring to keep the ball rolling with very successful all-mobile, all-talking QSOs. 7FM has at last acquired the long awaited 600 aside tranny, and assures me that everything is well in hand for early activity.

## NORTHERN ZONE

Col 7LZ has received his certificate as highest scored in the State at the last Royal Hull V.H.F. Meeting. The Zone 10 Committee, G1GM, have building a multi-band tank for Tx and new multi-band antenna coupler, can now change bands in about 10 seconds: a new v.f.o. is also in the works. Last month, 7LZ turned up with a plenty of news of G 144 Mc. 7BQ turned early in August after his trip abroad. Me thinks Len will be in demand as a lecturer in the near future. Tape recorders are in the news again, and 7LZ has been busy up, and 7H1 wrestled with circuits for a tape.

7DB hopes to have rigs on the air soon, it has arrived at the new QTH. 7RB is another who should be heard again soon. 7LX read a good report concerning a 1.5 Mc. 7WZ antenna in VK5MJD's "Sunspots" and DX" in August "A.R." Then the glee changed to gloom when the super antenna came down. 7WZ blew up a power transformer getting a diagnosis on for the 7D. 7H1, Ham, has a VFRAS 1000, but misfortune to lose his antenna system in a recent hurricane; Sam is a VR2 who always offers a helping hand to VKs and he QSLs.

## NORTH WESTERN ZONE

The Annual Meeting and Dinner was duly held at the home of Mr. M. Richardson. An

election of officers was held but no alteration was made, the officers being: President 7KB, Secretary and Treasurer 7SF, and Zone Correspondent R. K. Wilson. Mr. D. Richardson agreed to be club instructor for the period. Our sincere thanks go to Mr. M. Richardson for his untiring efforts toward the working of the zone in the past year and also for securing a room for the purpose of holding classes and meetings.

The present were E. Sheldrick, S. Medford, M. Richardson, R. Richardson, K. Hancock and R. Wilson. After the meeting had concluded a very nice supper was enjoyed by all.

## HAMADS

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Advertisements under this heading will only be accepted from Institute Members who desire to do business with others who own personal property. Copy must be received by 5th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

**FOR SALE**—BC966A Transceiver, brand new; Type 98 field strength meter with telescopic aerial, meter and valve, new; Command Receiver, 3-6 Mc., new; A1 C.R.O., complete all valves and tube, new. Also 3BZ A.W.A. Teleradio Xmitter with microphone, relay, xtal, latest model, not disposals, either 12 volt d.c. or 240 a.c. Apply G. Laver, Fish Creek, Victoria.

**FOR SALE**—Kingsley AR7 Receiver, complete with coils and instruction manual, less power supply and speaker. Best offer. S. Ferguson, Miller Street, Tongala, Vic.

**FOR SALE**—733D High Freq. Rcvr., complete xtals, tubes, as new, £7/10/-; 465 Kc. Biley type CF1 Xtal Filter Unit, £2; VCR139A Cathode Ray Tube, new, 35/-; Copy National type PW-O Slow Motion Dial, £5. R. Jepson, 12 Camden St, St. Kilda, Vic. Phone (business hours): MX 4641, Extn. 210.

**FOR SALE**—75 ft. Amphenol 300 ohm twin lead and 35 ft. heavy 14 gauge twin lead. In original package with instructions for 20 mx folded dipole. Never used. VK3BG, 25 Panoramic Rd., N. Balwyn, E.9, Vic.

**SELL**—Wavemeter type W1117, good clean condition, 0-5000 Microamp. Meter, recently overhauled, with or without batteries. Roget, 43 Willow Grove, North Kew, Vic. (WL 3604).

**WANTED**—Instruction Manual for BC348 B, H. K. L or R. O'Donnell, 52 Ryot Street, Warrnambool.

**WANTED**—One Prop. Pitch Motor T. Dick, 29 Dundas Street, Wellington, New Zealand.

**WANTED TO BUY**—Transceiver ATR4A or 12 volt D.C. ATR2 series. Lang, Titanga, Lismore, Victoria.

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Type	H.T.	M.	Volts	Filament	Ratings	Mounting	Amateur	List	Type	H.T.	M.	Volts	Filament	Ratings	Mounting	Amateur	List
							Price*	Price†							Price*	Price†	
U40/285	40	285/285	6.3v/2a	5v/2a		Upright	28/8	53/9	U80/285	80	285/285	6.3v/2a	6.3v/2a	5v/2a	Upright	39/8	74/5
F40/285	40	285/285	..	..		Flat	..	..	F80/285	80	285/285	..	..	..	Flat	..	..
U40/325	40	325/325	..	..		Upright	29/8	55/8	U80/325	80	325/325	..	..	..	Upright	40/8	79/8
F40/325	40	325/325	..	..		Flat	..	..	F80/325	80	325/325	..	..	..	Flat	..	..
U50/225	50	225/225	..	..		Upright	29/2	54/10	U80/385	80	385/385	..	..	..	Upright	42/8	80/7
F50/225	50	225/225	..	..		Flat	..	..	F80/385	80	385/385	..	..	..	Flat	..	..
U60/285	60	285/285	..	..		Upright	34/8	65/-	U100/285	100	285/285	6.3vct/2a	6.3vct/2a	5v/2a	Upright	44/-	84/5
F60/285	60	285/285	..	..		Flat	..	..	F100/285	100	285/285	..	..	..	Flat	..	..
U60/325	60	325/325	..	..		Upright	35/3	66/1	U100/325	100	325/325	..	..	..	Upright	45/-	84/5
F60/325	60	325/325	..	..		Flat	..	..	F100/325	100	325/325	..	..	..	Flat	..	..
U60/385	60	385/385	..	..		Upright	38/-	71/3	U100/385	100	385/385	6.3vct/2.5a	..	..	Upright	49/10	93/7
F60/385	60	385/385	..	..		Flat	..	..	F100/385	100	385/385	..	..	..	Flat	..	..

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